

What is claimed is:

1. A magnet apparatus comprising:

a housing with at least two side walls, and top and bottom walls connecting the side walls;

5 at least two first magnets disposed with their poles orthogonal to the bottom wall of the housing;

at least three second magnets disposed with their poles parallel to the bottom wall of the housing, one of said at least three second magnets being disposed between the at least two first magnets.

10 2. The magnet apparatus of claim 1, wherein the at least two first magnets and the at least three second magnets all abut the bottom wall of the housing.

3. The magnet apparatus of claim 1, further comprising:

a first pole structure extending along both sidewalls and the top wall of the housing.

15 4. The magnet apparatus of claim 3, further comprising:

a second pole structure extending between the at least two first magnets.

5. The magnet apparatus of claim 1, wherein a north pole of one of the at least two first magnets abuts the bottom wall of the housing, and a south pole of the other of the at least two first magnets abuts the bottom wall of the housing.

20 6. The magnet apparatus of claim 5, wherein south poles of two of the at least three second magnets abut the south pole of the other of the at least two first magnets, and a north pole of a third of the at least three second magnets abuts the north pole of the one of the at least two first magnets.

7. The magnet apparatus of claim 1, wherein the at least two first magnets are of the same magnetic strength and the at least three second magnets are of the same magnetic strength.

5 8. The magnet apparatus of claim 1, wherein the at least two first magnets and the at least three second magnets are made at least partially of a rare earth trivalent element.

9. The magnet apparatus of claim 1, wherein the at least two first magnets and the at least three second magnets are made at least partially of Neodymium.

10 10. The magnet apparatus of claim 1, wherein the at least two first magnets and the at least three second magnets are made at least partially of Neodymium, Boron and Iron.

10 11. A magnet apparatus comprising:

 a first pole structure having first and second parallel sidewalls and a top wall connecting the pair of sidewalls;

 at least one first magnet disposed with its poles parallel to the top wall, and so that its north pole abuts the first sidewall;

15 at least one second magnet disposed with its poles orthogonal to the top wall, and so that its south pole abuts a south pole of the at least one first magnet;

 at least one third magnet disposed with its poles parallel to the top wall, and so that its south pole abuts the south pole of the at least one second magnet;

20 at least one fourth magnet disposed with its poles orthogonal to the top wall, and so that its north pole abuts a north pole of the at least one third magnet; and,

 at least one fifth magnet disposed with its poles orthogonal to the top wall, and so that its south pole abuts the second sidewall.

12. The magnet apparatus of claim 11, wherein the first and second side walls and the top wall are made of ferromagnetic metals.

13. The magnet apparatus of claim 11, further comprising:

5 a housing, wherein the first pole structure, the at least one first magnet, the at least one second magnet, the at least one third magnet, the at least one fourth magnet, and the at least one fifth magnet are disposed within the housing.

14. The magnet apparatus of claim 11, further comprising:

a second pole structure coupling the north pole of the at least one second magnet to a south pole of the at least one fourth magnet.

10 15. The magnet apparatus of claim 14, wherein the first and second side walls, the top wall, and the second pole structure are made of ferromagnetic metal.

16. The magnet apparatus of claim 14, further comprising:

15 a housing, wherein the first pole structure, the second pole structure, the at least one first magnet, the at least one second magnet, the at least one third magnet, the at least one fourth magnet, and the at least one fifth magnet are disposed within the housing.

20 17. A magnetic apparatus comprising:

a housing with a recess formed therein for receiving a pipe;
a first magnet structure disposed in the housing, said first magnet structure comprising a first magnet with its poles disposed orthogonal to the recess, a second magnet with its poles disposed parallel to the recess, and a third magnet with its poles disposed orthogonal to the recess.

18. The magnetic apparatus of claim 17, further comprising:

a second magnet structure disposed in the housing, said second magnet structure comprising a first magnet with its poles disposed orthogonal to the recess, a second magnet with its poles disposed parallel to the recess, and a third magnet with its poles disposed orthogonal to the recess.

5 19. The magnetic apparatus of claim 18, further comprising:

 a pipe disposed in the recess, wherein the first and second magnetic structures are disposed on opposite sides of the pipe.

10 20. The magnetic apparatus of claim 18, wherein the first magnet of the first magnet structure has its south pole abutting the recess, the second magnet of the first magnet structure has its south pole abutting the first magnet of the first magnet structure, and the third magnet of the first magnet structure has its north pole abutting the recess.

15 21. The magnetic apparatus of claim 20, wherein the first magnet of the second magnet structure has its south pole abutting the recess, the second magnet of the second magnet structure has its south pole abutting the first magnet of the second magnet structure, and the third magnet of the second magnet structure has its north pole abutting the recess.

22. The magnetic apparatus of claim 18, wherein the first, second and third magnets of the first magnet structure and the first, second and third magnets of the second magnet structure are made at least partially of a rare earth trivalent element.

20 23. The magnet apparatus of claim 18, wherein the first, second and third magnets of the first magnet structure and the first, second and third magnets of the second magnet structure are made at least partially of Neodymium.

24. The magnet apparatus of claim 18, wherein the first, second and third magnets of the first magnet structure and the first, second and third magnets of the second magnet structure are made at least partially of Neodymium, Boron and Iron.

5 25. The magnetic apparatus of claim 18, wherein the first, second and third magnets of the first magnet structure and the first, second and third magnets of the second magnet structure are all of a first magnetic power.

10 26. The magnetic apparatus of claim 18, wherein the first and third magnets of the first magnet structure and the first and third magnets of the second magnet structure are of a first magnetic power, and the second magnet of the first magnet structure and the second magnet of the second magnet structure are of a second magnetic power, said first magnetic power being greater than said second magnetic power.

15 27. A magnetic treatment system comprising:

 a pipe for carrying fluid or gas; and,

 a magnet apparatus comprising a housing with at least two side walls, and top and bottom walls connecting the side walls; at least two first magnets disposed with their poles orthogonal to the bottom wall of the housing; and at least three second magnets disposed with their poles parallel to the bottom wall of the housing, wherein one of said at least three second magnets being disposed between the at least two first magnets.

20 28. The magnetic treatment system of claim 27, wherein a magnetic flux generated by the magnet apparatus extends substantially to central axis of the pipe.

 29. The magnetic treatment system of claim 27, wherein the at least two first magnets are of the same magnetic strength and the at least three second magnets are of the same magnetic strength.

30. A magnetic treatment system comprising:

a pipe for carrying fluid or gas; and,

5 a magnet apparatus comprising a first pole structure having first and second parallel sidewalls and a top wall connecting the pair of sidewalls; at least one first magnet disposed parallel to the top wall, and so that its north pole abuts the first sidewall; at least one second magnet disposed perpendicular to the top wall, and so that its south pole abuts a south pole of the at least one first magnet; at least one third magnet disposed parallel to the top wall, and so that its south pole abuts the south pole of the at least one second magnet; at least one fourth magnet disposed perpendicular to the top wall, and so that its north pole abuts a north pole of the at least one third magnet; and, at least one fifth magnet disposed parallel to the top wall, and so that its south pole abuts the second sidewall.

10 31. The magnetic treatment system of claim 30, wherein the first and second side walls and the top wall of the magnet apparatus are made of ferromagnetic metal.

15 32. The magnetic treatment system of claim 30, further comprising:

a second pole structure coupling the north pole of the at least one second magnet to a south pole of the at least one fourth magnet.

20 33. The magnetic treatment system of claim 32, wherein the first and second side walls, the top wall, and the second pole structure of the magnet apparatus are made of ferromagnetic metal.

34. The magnetic treatment system of claim 30, wherein a magnetic flux generated by the magnet apparatus extends substantially to central axis of the pipe.

35. A method removing impurities from a liquid or gas comprising the steps of:

disposing at least one magnet apparatus in an abutting relationship with a pipe carrying the liquid or gas; and

adjusting a magnetic flux of the at least one magnet apparatus so that the flux substantially extends to a central axis of the pipe.

5 36. The method of claim 35, wherein the step of adjusting the magnetic flux comprises altering the orientation of a plurality of magnets disposed within the at least one magnet apparatus.

10 37. The method of claim 35, wherein the step of disposing at least one magnet apparatus comprises disposing at least two first magnet apparatus and at least three second magnet apparatus, wherein poles of the at least two first magnet apparatus are arranged orthogonal to a main axis of the pipe and poles of the at least three second magnet apparatus are arranged parallel to the main axis of the pipe.

15 38. The method of claim 35, wherein the step of disposing at least one magnet apparatus comprises disposing at least two first magnet apparatus and at least one second magnet apparatus on each side of the pipe, wherein poles of the at least two first magnet apparatus are arranged orthogonal to a main axis of the pipe and poles of the at least one second magnet apparatus are arranged parallel to the main axis of the pipe.